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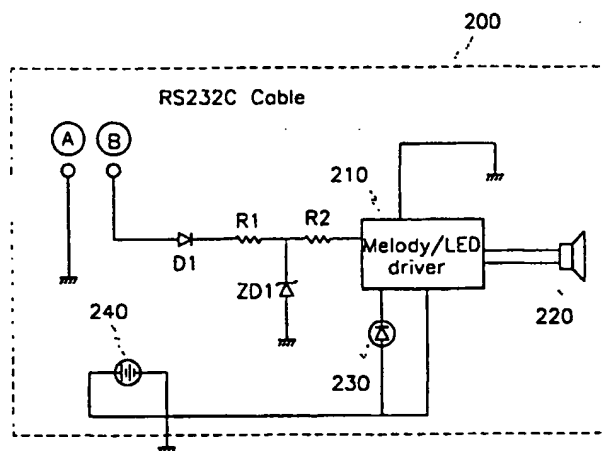
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(54) Title: EMAIL CHECKER AND EMAIL ARRIVAL NOTIFIER

(57) **Abstract:** Disclosed is an email checker, for automatically checking receipt state of the emails, comprises a mail checking manager, a mail checking timer, and a mail analyzer. The mail checking manager reads a login ID, a login password, and a URL information to refer to stored in a mail registry file, and generates a dialog displaying a current mail check history and a progressing state. The mail checking timer generates a thread at each predetermined time unit by using the login ID, the login password, and the URL read by the mail checking manager. The mail analyzer accesses to the corresponding mail server or the URL and analyzes the receipt state of the mails and the number of the received mails by using the thread received from the mail checking timer. This email checker automatically checks the receipt state of the emails, and in the case where the mail is received, transmits the check results to the mail arrival notifier. Therefore, the user can check the receipt state of the mails by using the mail arrival notifier such as the telephone, mouse, or keyboard as well as the computer.

EMAIL CHECKER AND EMAIL ARRIVAL NOTIFIER

BACKGROUND OF THE INVENTION

(a) Field of the Invention

5   The present invention relates to an email checker and an email arrival notifier. More specifically, the present invention relates to an email checker and an email arrival notifier which check arrivals of the emails at a mail server, and when the email exists in the mail server, automatically notifies the recipient of the arrival of the emails.

10 (b) Description of the Related Art

Developments in recent Internet technologies have made transmitting and receiving desired information and files by email popular.

However, conventional techniques do not automatically check for the email arrival, and therefore, a user has to manually access a mail checking

15 program and check for arrival of the email in every case. Specifically, in the case where the user receives emails from a plurality of mail servers, the user has to check all the mail servers and therefore spends a lot of time checking for the emails.

Also, when receiving the emails via a computer, the recipient is not

20 notified of the arrival of the emails via any other electronic device such as a telephone, and therefore, in the case when the user is absent from his computer for some time, the user is not able to check for the arrival of the emails. Hence, the user cannot quickly answer urgent emails.

25   ## SUMMARY OF THE INVENTION

It is an object of the present invention to provide an email checker which can automatically check for the arrival of the emails, and checks the arrival of the emails from a plurality of the mail servers.

It is a further object of the present invention to provide an email

arrival notifier by which the user can easily check for the arrival of the emails using a telephone, keyboard, or mouse even when the user is absent from the computer for a long time.

In one aspect of the present invention, in an email checker

5 automatically checking for receipt of the email, an email checker comprises: a mail checking manager reading a login identification (ID), a login password, and uniform resource locator (URL) information to refer to stored in a registry file, and generating a dialog indicating a current mail checking history and a progressing state; a mail checking timer generating a thread at each

10 predetermined time unit established using the login ID, the login password, and the URL information read by the mail checking manager; and a mail analyzer accessing a corresponding mail server or URL and analyzing a receipt of the mail and the quantity of the received mail by using the thread received from the mail checking timer.

15 The mail checking timer generates the threads to respectively receive post office protocol 3(POP3) mails and web mails, and transmits the threads to the mail analyzer.

The mail analyzer accesses the corresponding mail server through the ID and the password in the thread so as to check for the receipt of the

20 POP3 mail, and checks the quantity of the POP3 mail, and notifies the mail checking timer of the quantity of the POP3 mail checked through the thread.

In order to check for receipt of the web mail, the mail analyzer accesses the corresponding server, receives hyper text markup language (HTML) documents, finds the HTML document having the URL to log in, and

25 then using the ID and the password read from the registry file, logs in the HTML document, and checks the quantity of the mail.

The mail checking timer receives the arrival state and the quantity of the mail from the mail analyzer, and displays the arrival state of the mail and the quantity of the arrived mail on a tray on the screen.

30 The email checker further comprises a signal managing device which notifies an external device of the receipt state of the mail through a

cable when receiving a mail receipt signal from the mail checking timer.

In another aspect of the present invention, an email arrival notifier comprises: a connector connected to a computer equipped with an email checker automatically checking the receipt state of the emails; cable connected to the connector; and a main body including a built-in mail arrival notifying circuit, connected to the email checker through the cable and the connector, signaling the receipt state of the mail through a melody or flickering lights when the email checker checks for the receipt of the mail.

The mail arrival notifier, connected to the cable connected to the computer, comprises a melody/light emitting diode (LED) driver which drives a buzzer or the LED when the email checker receives an email.

The connector comprises a battery which supplies the voltage to operate the melody/LED driver.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate an embodiment of the invention, and, together with the description, serve to explain the principles of the invention:

FIG. 1 shows an email checker according to a preferred embodiment of the present invention;

FIG. 2 shows a circuit diagram of an email arrival notifier to be connected to the email checker according to the preferred embodiment of the present invention; and

FIG. 3 shows an appearance of the email arrival notifier according to the preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the following detailed description, only the preferred embodiment of the invention has been shown and described, simply by way of illustration

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of the best mode contemplated by the inventor(s) of carrying out the invention. As will be realized, the invention is capable of modification in various obvious respects, all without departing from the invention. Accordingly, the drawings and description are to be regarded as illustrative in
5 nature, and not restrictive.

FIG. 1 shows an email checker according to a preferred embodiment of the present invention. The email checker concurrently checks Post Office Protocol 3 (POP3) mail and web mail. The POP3 mail is generally received via email servers, and in the preferred embodiment of the present invention,
10 the conventional POP3 protocol is used to receive this POP3 mail. The web mail is received via web browsers, and according to the preferred embodiment of the present invention, the Hyper Text Transfer Protocol (HTTP) is used to receive Hyper Text Markup Language (HTML) documents, analyze the HTML documents, and find the HTML document to log in. When
15 the HTML document to log in is found, the email checker automatically logs in this document to again receive the HTML document and checks the mail states from this received HTML document.

As shown in FIG. 1, the email checker 100 according to the preferred embodiment of the present invention comprises a mail checking manager
20 120, a mail checking timer 140, a mail analyzer 160, and an RS-232C signal managing device 180.

The mail checking manager 120 manages initialization and overall operations of the email checker as follows.

First, the mail checking manager 120 initializes a socket which is a
25 path to transmit and receive the emails, and generates a tray icon, which indicates the arrival of the emails and the number of the arrived emails, on the bottom of a monitor of the computer.

Second, the mail checking manager 120 generates a dialog which is a screen configuration to display the history of mail checks and the current
30 state. This dialog displays the Uniform Resource Locator (URL) where the emails exist, the number of the emails, and the types of the emails.

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Third, the mail checking manager 120 reads login information stored in a registry file, that is, a login identification (ID), a login password, and a URL to refer to.

Fourth, the mail checking manager 120 generates and manages messages (e.g., a mail account, searching time, progression state, and results) to be transmitted to the monitor screen and a COM port.

The mail checking timer 140 manages threads for managing the email checker as follows.

First, the mail checking timer 140 manages the threads. In detail, the mail checking timer 140 generates the threads at each predetermined time unit (e.g., 5 minutes) and transmits the same to the mail analyzer, and when the operation of each thread is completed, removes the corresponding thread.

Second, the mail checking timer 140 outputs the messages on the tray according to setting variables set by the thread, and in detail, outputs the quantity of the mail and the mail account list on the tray. At this time, according to the preferred embodiment of the present invention, even when the user does not click the icon on the tray but just puts a mouse pointer on it, the account name and the mail check results are displayed.

Third, the mail checking timer 140 generates the threads for the POP3 mail and the web mail, selects the POP3 mail and the web mail, and transmits and receives the same.

Fourth, the mail checking timer 140 transmits signals about whether mail has been received to the RS-232C signal managing device 180 at each predetermined time unit.

The mail analyzer 160 receives the threads from the mail checking timer 140 and accesses the corresponding mail servers and the URLs, then receives the POP3 mail and the web mail as in the following method, checks the quantity of the mail, and then notifies the mail checking timer 140 of the receipt and the quantity of the mail through the thread.

That is, the mail analyzer 160 accesses the corresponding mail

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server through the ID and the password in the thread so as to receive the POP3 mail, checks the quantity of the POP3 mail, and notifies the number to the thread. Also, the mail analyzer 160 accesses the corresponding server to check the web mail and receives the HTML document, and checks
5 whether this HTML document is related to the emails. When this HTML document is related to the emails, the mail analyzer checks the quantity of the web mail and notifies the same to the thread.

The mail check timer 140 checks the arrival and the quantity of the mail received from the mail analyzer 160, displays information relating to this
10 on the tray on the screen, and concurrently transmits the signal as to whether mail has been received to the RS-232C signal managing device 180.

The RS-232C signal managing device 180, when receiving the signal as to whether mail has been received from the mail checking timer 140, notifies the mail arrival notifier connected to the computer by the RS-232C
15 cable about whether mail has been received, and if so, how much. In the preferred embodiment of the present invention, the computer is connected to the mail arrival notifier through the RS-232C cable, but, in addition to this, they can be connected using the Universal Serial Bus (USB), PS2 cable, or wireless network. Below, for ease of explanation, it is assumed that the
20 connection is performed using the RS-232C cable.

According to the preferred embodiment of the present invention, the email checker 100 is implemented in the actual program, and when this program is installed in the computer, it works as noted above.

FIG. 2 shows a circuit diagram of the email arrival notifier to be
25 connected to the email checker according to the preferred embodiment of the present invention.

As shown, in the mail arrival notifier according to the preferred embodiment of the present invention, an anode of a diode D1 is connected to a terminal B of the RS-232C cable connected to the Com port of the
30 computer (not illustrated). Resistors R1 and R2 are connected to a cathode of the diode D1 in series. One end of a zener diode ZD1 is connected to a

connection point where the resistors R1 and R2 are connected, and another end of the zener diode ZD1 is grounded. This zener diode ZD1 clamps the voltage at the connection point so that the voltage at the connection point may not be over a predetermined voltage, that is, the zener

5 breakdown voltage. A melody/LED driver 210 is connected to the resistor R2, and a buzzer 220 and a light emitting diode (LED) 230 to the melody/LED driver 210. When the voltage at the resistors R1 and R2 is over a predetermined voltage, the melody/LED driver 210 drives the buzzer 220 and the LED 230 and notifies the user whether to receive a mail. A battery

10 240 is connected to the melody/LED driver 210 and the LED 230 to provide the voltage.

An automatic mail checking operation according to the preferred embodiment of the present invention will now be described with reference to FIGs. 1 and 2.

15   First, the user sets a mail server to check for mail receipt, for ID and password to access the server, and the mail checking time interval in a registry file.

Next, the mail checking manager 120 reads the login information stored in the registry file, that is, the login ID, login password, and URL to

20 refer to.

The mail checking timer 140 generates the threads based on the ID, password, and the URL, and transmits threads to the mail analyzer 160. Based on the threads transmitted from the mail checking timer 140, the mail analyzer 160 accesses the corresponding mail server and the URL, and

25 analyzes the receipt state of the POP3 mail and the web mail, and the quantity of the received mail.

That is, the mail analyzer 160 accesses the corresponding mail server through the ID and password in the thread, and checks the quantity of the POP3 mail, and notifies the number to the mail checking timer 140

30 through the thread.

Also, the mail analyzer 160 accesses the corresponding server to

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check the web mail and receives the HTML document and analyzes the HTML document. At this time, the mail analyzer 160 repeatedly receives the HTML documents and analyzes the same until it finds the URL having the HTML document to log in. When finding the HTML document to log in,

5 the mail analyzer 160 automatically logs in using the ID and the password read from the registry file previously stored, and again receives the HTML document, and repeatedly analyzes the document until it finds the mail state. When finding the HTML document having the quantity of the mail, the mail analyzer 160 checks the quantity of the mail and notifies the number to the

10 mail checking timer 140 via the thread.

The mail checking timer 140, when checking the receipt state of the mail and the quantity of the mail, displays the corresponding information to the tray on the screen, and concurrently transmits to the RS-232C signal managing device 180 a message of mail receipt.

15 When receiving the mail receipt signal from the mail checking timer 140, the RS-232C signal managing device 180 transmits a high signal to the mail arrival notifier 200 via the RS-232C cable. When receiving the high signal from the RS-232C signal managing device, the melody/LED driver 210 of the mail arrival notifier 200 drives the buzzer 220 and the LED 230 to

20 notify the user of a receipt of a mail. At this time, the sound of the buzzer and the number of the flickers of the LED 230 are established according to the quantity of the received mail.

FIG. 3 shows an automatic mail checking phone 300 and its peripherals according to the preferred embodiment equipped with the mail

25 arrival notifier 200 of FIG. 2. In FIG. 3, the mail checking phone is used as an example of the mail arrival notifier, but in addition, keyboards, mouses, or toys can also be utilized.

Referring to FIG. 3, the automatic mail checking phone 300 is equipped with the mail arrival notifier 200 of FIG. 2, except the battery 240.

30 The automatic mail checking phone 300 is connected to a connector 260 through a first cable 282, and to a phone cable terminal 286 through a

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second cable 284. The phone cable terminal 286 receives ring signals and voice signals transmitted from a telephone office. The connector 260, connected to the Com port of the computer, receives mail receipt signals from the RS-232C signal managing device 180 of the automatic mail checker

5 100. The connector 260 comprises a connection pin 270 to connect to the computer, and a battery 240. The battery 240 of the connector 260 is the battery of the mail arrival notifier of FIG. 2, and this battery supplies the voltage to the melody/LED driver 20 and the LED 230. The connector 260 has a cover (not illustrated) to insert or remove this battery, and the battery

10 to drive the mail arrival notifier 200 can be easily inserted or removed by this cover.

While this invention has been described in connection with what is presently considered to be the most practical and preferred embodiment, it is to be understood that the invention is not limited to the disclosed

15 embodiments, but, on the contrary, is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims. For example, when the mail arrival notifier is installed in the other electronic apparatuses such as the monitor and the keyboard as well as the phone, these apparatuses automatically notify the user of

20 received mail.

As described above, the present invention automatically checks for the receipt of the mail when the emails have arrived, and it automatically checks for the emails from a plurality of the mail servers.

Since the present invention can check whether the emails are received using

25 the mail arrival notifier installed in the phone, the user can easily check for the receipt of the mail even when the user is absent from the computer for a while.

10

WHAT IS CLAIMED IS:

1. In an email checker automatically checking for receipt of the email, an email checker, comprising:

a mail checking manager reading a login identification (ID), a login
5 password, and uniform resource locator (URL) information to refer to stored in a registry file, and generating a dialog indicating a current mail checking history and a progressing state;

a mail checking timer generating a thread at each predetermined time unit established using the login ID, the login password, and the URL
10 information read by the mail checking manager; and

a mail analyzer accessing a corresponding mail server or URL and analyzing a receipt of the mail and the quantity of the received mail by using the thread received from the mail checking timer.

2. The email checker of claim 1, wherein the mail checking timer
15 generates the threads to respectively receive post office protocol 3 (POP3) mail and web mail, and transmits the threads to the mail analyzer.

3. The email checker of claim 2, wherein the mail analyzer accesses the corresponding mail server through the ID and the password in the thread so as to check for receipt of the POP3 mail, and checks the quantity of the
20 POP3 mail, and notifies the mail checking timer of the quantity of the POP3 mail checked through the thread.

4. The email checker of claim 2, wherein in order to check receipt of the web mail, the mail analyzer accesses the corresponding server, and receives hyper text markup language (HTML) documents, and finds the
25 HTML document having the URL to log in, and then using the ID and the password read from the registry file, logs in the HTML document and checks the quantity of the mail.

5. The email checker of claim 1, wherein the mail checking timer receives the arrival state and the quantity of the mail from the mail analyzer,
30 and displays the arrival state of the mail and the quantity of the arrived mail to a tray on the screen.

6. The email checker of claim 5, wherein the email checker further comprises a signal managing device which notifies an external device of the receipt state of the mail through a cable when receiving a mail receipt signal from the mail checking timer.

7. An email arrival notifier, comprising:

a connector connected to a computer equipped with an email checker automatically checking the receipt state of the email;

cable connected to the connector; and

a main body including a built-in mail arrival notifying circuit, connected to the email checker through the cable and the connector, notifying the receipt state of the mail through a melody or light flickers when the email checker checks for the receipt of the mail.

8. The email arrival notifier of claim 7, wherein the mail arrival notifier, connected to the cable connected to the computer, comprises a melody/light emitting diode (LED) driver which drives a buzzer or the LED when the email checker receives an email.

9. The email arrival notifier of claim 8, wherein the connector comprises a battery which supplies the voltage to operate the melody/LED driver.
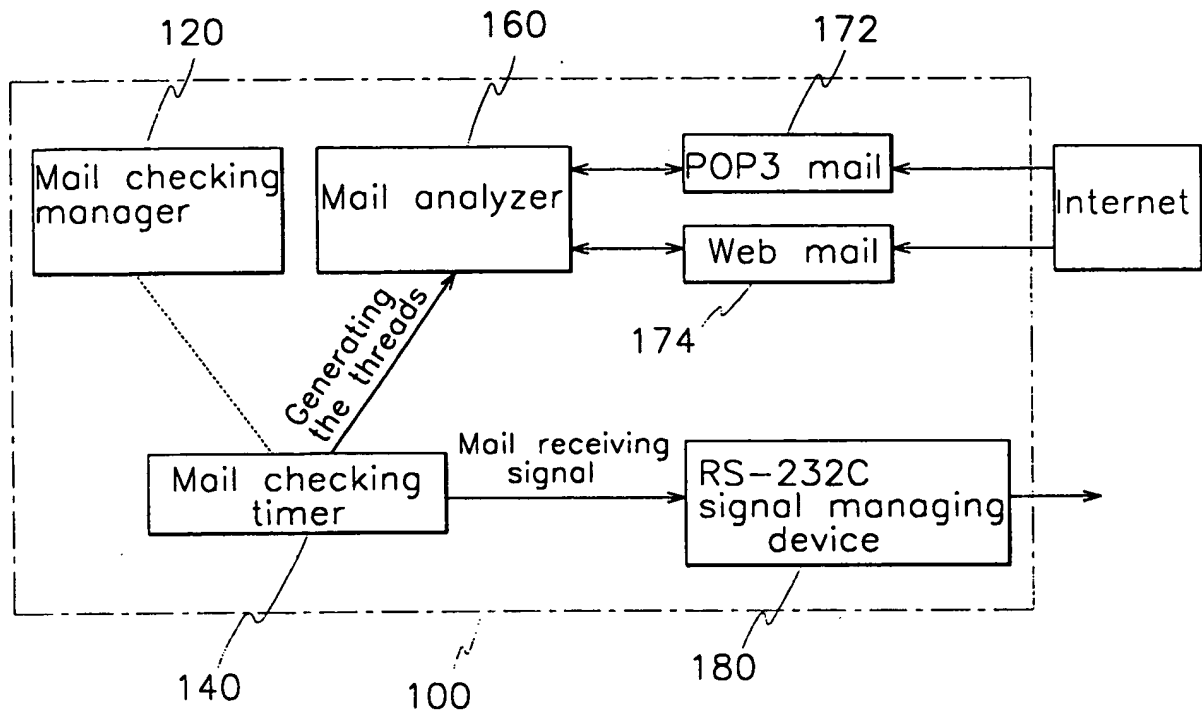
10. The email arrival notifier of claim 8, wherein the cable is an RS-232C cable, a universal serial bus (USB) cable, or a PS2 cable.

11. The email arrival notifier of claim 8, wherein the email arrival notifier is a telephone.

12. The email arrival notifier of claim 8, wherein the email arrival notifier is a keyboard, a mouse, or a toy.
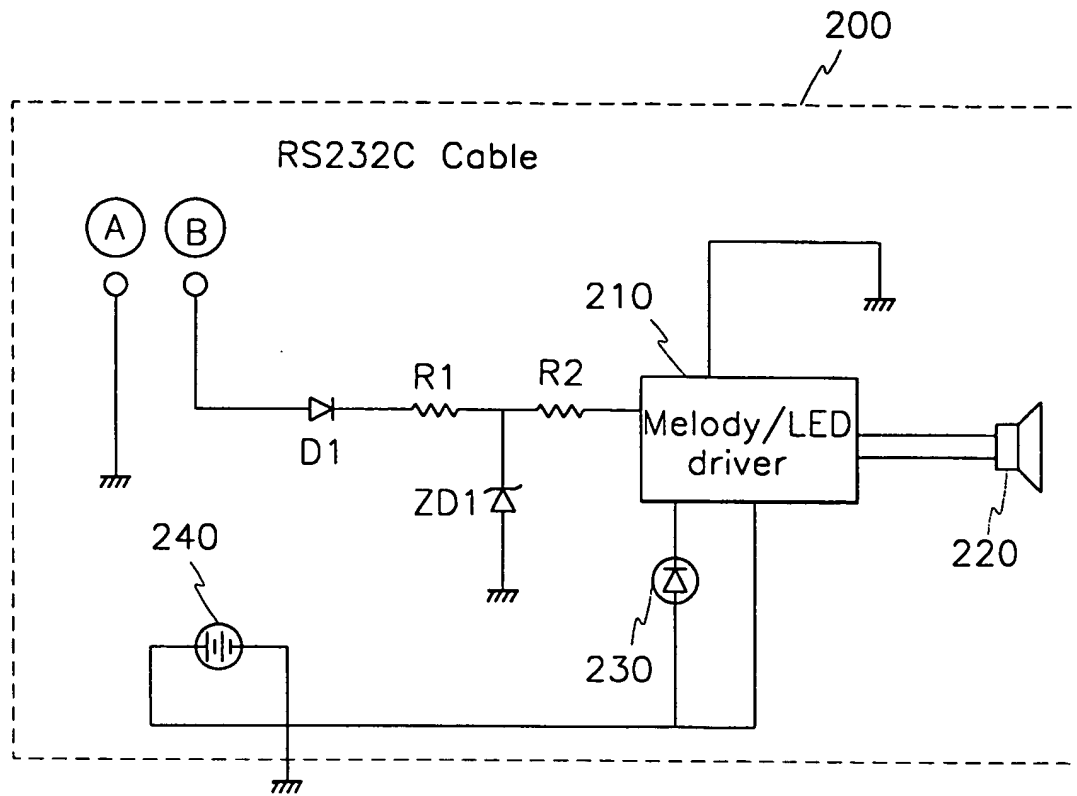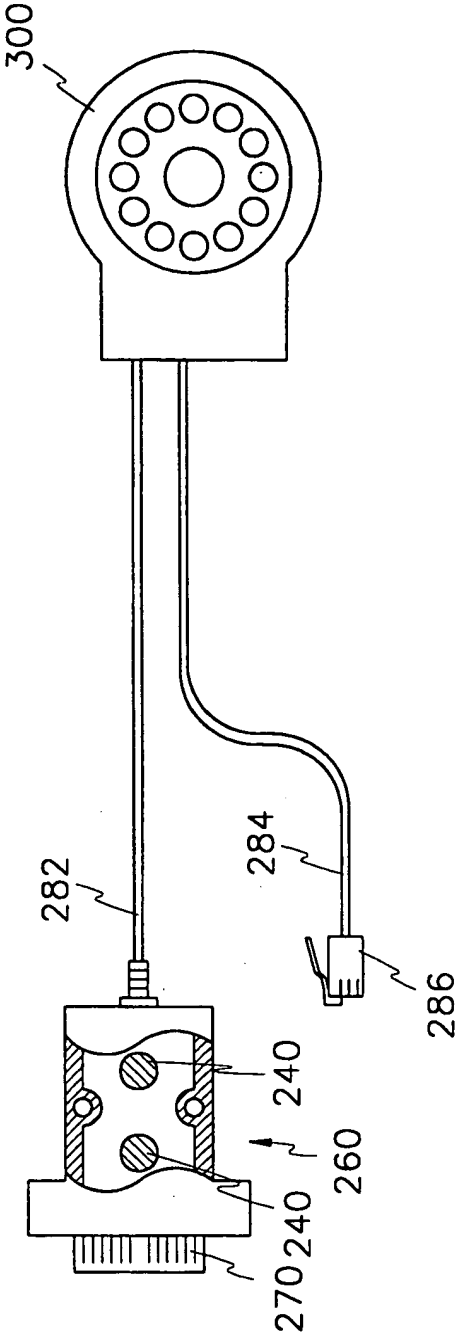
FIG.1

FIG.2

FIG.3